arrival at the bridge, with its cool, coffee-colored, cedar swamp water, like reaching an oasis in the Sahara. One feels as if gallons would be insufficient to slake one's thirst; and it is no hardship, after such a walk, to go floundering around in the sphagnum and water up to your knees in search of the smallest fern that grows, around the bases of the swamp cedars. The Egg Harbor station is like going into a parlor along side of the effort necessary to be successful at Quaker Bridge.

It was while trying to get a little relief from the hordes of mosquitoes that pestered us, that we found it was delightfully cool ten yards in among the cedars and, from some unexplained cause, the mosquitoes were almost entirely absent. There I found that rarity, *Habenaria integra*, a single plant growing and blooming in the dense shade.

I will conclude by mentioning a single plant of *Pellaea atropurpurea* growing in a crevice of a cliff at Dark Hollow along the Neshaminy Creek, which remained for close to twenty years alone, as I never found any more anywhere in the vicinity.

PHILADELPHIA, PA.

Notes and news

A REVIEW: THE FERNS OF ALLEGHENY COUNTY, PENNSYLVANIA.* By L. S. HOPKINS.

In his "Ferns of Allegheny County," Mr. Hopkins has issued a very interesting and attractively illustrated little manual. It comprises a total of 130 pages of which about half are half-tone plates. Some of these plates are from herbarium specimens, some from live plants in their natural state. Nearly all of these pic-

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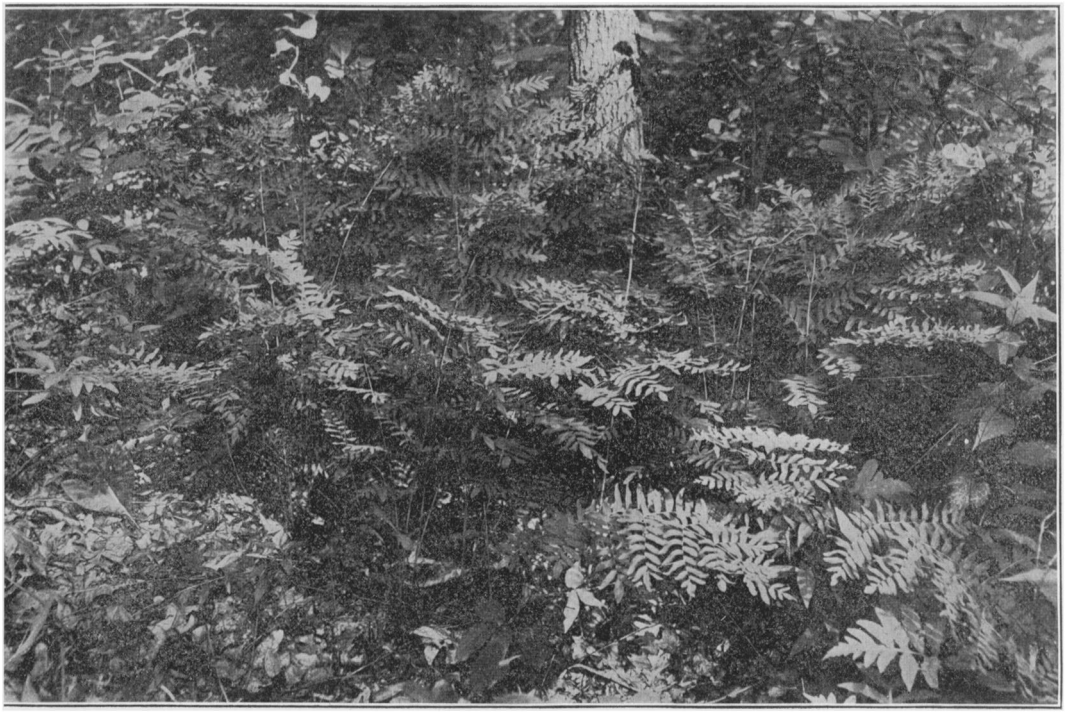

OSMUNDA REGALIS

(Reprinted by permission from Hopkins' *Ferns of Allegheny Co., Pa.*)

tures serve the purpose for which they were designed, i. e., to give the beginner a good idea of the appearance of the species illustrated.

With the pictures there is given brief text descriptions of each of the species, some citation of specimens, and further comment regarding the rarity, habits, and other points of interest. In this connection I noted a comment regarding *Ophioglossum* as follows: it "cannot be regarded as a common plant anywhere and it is safe to say that it is known to a greater number of persons from having seen herbarium specimens than from having seen it growing." The statement is probably correct in the main, but I should like to invite Mr. Hopkins to go with the Torrey Club toward the last of June to a Hackensack meadow where thousands of plants of *Ophioglossum* grow.

Mr. Hopkins's opinion of Mrs. Parsons's "splendid little book" exactly meets the views of the reviewer who began his fern study with "How to Know the Ferns," and found its pages interesting and helpful in this connection. Another discriminative comment, anent the walking fern, is as follows: "This fern owes much of its popularity to its name, which seems to be of such a nature that it excites the interest and admiration of even those who do not profess to be fern lovers."

Two of the spinulose ferns are given popular names which are entirely new to the reviewer. *Dryopteris intermedia* is called the "American shield fern," and *D. dilatata* is called the "spreading shield fern." Both names are applicable, but hardly distinctive enough. There are too many other American shield ferns, and there are also other spreading shield ferns. American spinulose fern would be better, and spreading spinulose fern, but there is already a good name for *D. dilatata:* it should be called the Alpine or mountain shield fern.

But these are minor points. The reviewer is glad to recommend the manual for beginners' use both in field

AN HERBARIUM SPECIMEN OF DRYOPTERIS NOVEBORACENSIS
(Reprinted by permission from Hopkins' *Ferns of Allegheny Co., Pa.*)

and at home. The wealth of illustrations will serve to make identification of common ferns an easy task. (Two of the plates are here reproduced through the courtesy of Mr. Hopkins.)

R. C. B.

THE PROTHALLIA OF OPHIOGLOSSUM AND BOTRYCHIUM

The prothallia of ordinary ferns are so well known and so easily obtained that the ordinary stages of prothallial growth are matters of elementary instruction in botany. The prothallia of *Botrychium* and *Ophioglossum*, however, are very uncommon and even yet only a few kinds have been found, altogether five species in *Ophioglossum*, and three or four in *Botrychium*. Of these five are fairly well known, the others only incompletely. When it is considered that there is a total of over fifty species in these two genera distributed all over the earth it seems strange that so little is known about them.

Prof. D. H. Campbell, of Leland Stanford University, has given special study to these two genera, and has made extensive trips to the tropics to secure material of them. In Java, he secured good material of *Ophioglossum moluccanum* and *O. pendulum*, as well as of other ferns of interest. He had as long ago as 1892 begun his study of *O. pendulum*, and about the same time of *Botrychium virginianum*. In the intervening time other writers have found and studied *Botrychium virginianum* more completely (Jeffrey), *Ophioglossum vulgatum* and *B. Lunaria* (Bruchman). These five species are really the only ones which are at all thoroughly known, and there are many points about these still to be cleared up. The other species on which a small amount of work has been done are as follows: *B. matricariaefolium* and *B. simplex*, and *O. intermedium*. The list has been given thus completely because our knowledge of the prothallia